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MEMORANDUM OF AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE PEOPLE'S REPUBLIC OF CHINA REGARDING INTERNATIONAL TRADE IN COMMERCIAL LAUNCH SERVICES

I. PURPOSE

The Government of the United States of America (U.S.) and the Government of the People's Republic of China (PRC) (hereinafter the "Parties") have entered into this Memorandum of Agreement (Agreement), of which the attached Annexes are an integral part, to address certain issues regarding international trade in commercial launch services including continued PRC participation in the international market for commercial launch services. Nothing in this Agreement applies to launches of payloads for military purposes or for use in the non-commercial, civilian space programs of either Party including programs using spacecraft or satellites made by or for the use of the Government of the PRC.

II. TRADE ISSUES AND MARKET PARTICIPATION

The Delegation of the People's Republic of China and the Delegation of the United States of America held 5 rounds of negotiations in Beijing and Washington, D.C. As a result of these discussions, the parties believe that the entry of PRC commercial launch services into the international market has facilitated cooperation between the PRC and the U.S. in the space area, and agree that certain measures are appropriate to address certain issues regarding international trade in commercial launch services, including continued PRC participation in the international market for commercial launch services. Accordingly, after mutual and friendly consultations, the U.S. and the PRC have agreed as follows:

A. The U.S. and the PRC support the application of market principles to international competition among providers of commercial launch services, including the avoidance of below-cost pricing, government inducements, and unfair business practices.

B. The PRC shall continue to take steps to ensure that providers of commercial launch services controlled by or operating within the territory of the PRC do not materially impair the smooth and effective functioning of the international market for commercial launch services.

(i) Among these steps, the PRC shall ensure that any direct or indirect government support extended to its providers of commercial launch services is in accord with practices prevailing in the international market.

(ii) The PRC providers of commercial launch services shall not launch more than 11 principal payloads to geosynchronous earth

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orbit or geosynchronous transfer orbit for international customers during the period of this Agreement, excluding Apstar II, AsiaSat II, Intelsat 708 and Echostar I, which were reviewed and determined to be covered by the provisions of the 1989 Memorandum of Agreement. Any satellite launched by PRC providers that is entirely leased on orbit to international customers (pursuant to a commitment between the PRC and such customers) represents a launch of a principal payload for purposes of this Agreement. If not entirely leased on orbit to international customers, such a satellite may represent a launch of a principal payload if the satellite's capacity is primarily leased to international customers, depending upon the circumstances and facts of a particular case.

(iii)(a) The United States and the PRC take note of the potential emergence of the market for launches to low-earth-orbit (LEO) since 1989 as a separately identifiable commercial market with its own particular characteristics. It is still under development and is closely related to the rapid evolution of the satellite market and telecommunications market. The two parties further note that participation of its providers of commercial launch services in an appropriate manner in this market segment will contribute to, rather than detract from, the development of this market segment.

(b) Taking into account the current predictions for the growth in, and structure of, the LEO market, the United States recognizes that the participation of PRC launch services providers in that market segment could be substantial, so long as that participation is consistent with the provisions of this Agreement. The PRC states that its participation in the LEO market shall be consistent with the provisions of the agreement and with significant U.S. participation in the development of the LEO market and agrees to take steps to ensure that such participation will be proportionate and non-disruptive.

(c) If either party believes that the other party is participating, or may participate in this market in a manner inconsistent with its commitments under the agreement, the parties shall meet pursuant to the consultations provided for under Article IV(2) to ascertain the facts of the situation and take appropriate corrective action. In assessing the effect, or potential effect of PRC participation in the LEO market relative to its commitments in this Agreement, the United States Government will be guided, inter alia, by the following factors:

- 1) The extent and growth of overall PRC and U.S. participation in the LEO market;
- 2) With respect to proposals to deploy LEO communications satellite constellations, the extent of

participation by U.S., PRC, and third country launch service providers – in particular, whether the overall level of participation by launch service providers in countries with whom the U.S. has concluded a bilateral launch services agreement (measured according to distribution of payloads) in the deployment of any single LEO communications satellite constellation is greater than the participation of market economy launch service providers. The following factors should, inter alia, also be taken into account:

- the extent of PRC and U.S. participation in the deployment;
- launch scheduling requirements and the need to optimize launch vehicle selection to meet deployment or operational requirements;
- the availability of competitively-priced market economy launches to meet these requirements;
- opportunities made available to the parties for participation in the replacement market;
- reasonable considerations by the proposed system operator regarding commercial risk sharing;
- customers' requirements.

(iv) The PRC agrees that its providers of commercial launch services shall offer and conclude any contracts to provide commercial launch services to international customers (including sole source or directed procurements) at prices, terms, and conditions which are on a par with those prices, terms and conditions prevailing in the international market for comparable commercial launch services offered by commercial launch services providers from market economy countries, including the United States.

(a) When the differential between a bid, offer or contract by a PRC launch services provider and the bid, offer or contract by a commercial space launch services provider from a market economy country, including the U.S., to provide the commercial space launch services described in subparagraph (ii) above is less than 15 percent, it shall be assumed, unless information is provided to the contrary, that such bid, offer, or contract is consistent with subparagraph (iv) and that no special consultations are needed. When the differential between a bid, offer or contract by a Chinese launch service provider and the bid, offer or contract by a commercial space launch services provider from a market economy country, including the U.S., is greater than 15 percent and after taking into consideration the comparability factors described in Annex II, the U.S. believes that China's

launch service prices are not consistent with subparagraph (iv), the parties shall have special consultations under Article IV of this agreement.

(b) With respect to the commercial launch services described in subparagraph (iii) above, the Parties agree to undertake a detailed examination on a per payload basis, of the factors affecting the comparability of bids, offers or contracts for such services with a view towards completing this examination by the end of 1995.

(v) If, after consultations, both parties agree, the PRC may offer an introductory price on only the first test flight of a new type of launch vehicle.

(vi) The PRC agrees that any commitments to provide commercial launch services to international customers by PRC launch service providers shall be proportionally distributed over the period of the Agreement. To this end, the PRC shall make its best efforts to prevent a disproportionate concentration of such commitments during any two-year period of the Agreement. The PRC may make commitments in any three-year period of the Agreement consistent with subparagraph II(B)(ii) above. The PRC shall seek to ensure that PRC launches of principal payloads for international customers are performed as scheduled in the original launch commitment.

(vii) The PRC agrees to require its launch service or insurance providers to offer international customers any insurance or reflight guarantees on a par with prevailing rates and practices in international markets for comparable risk..

C. The U.S. stated that the U.S. does not provide government inducements of any kind in connection with the provision of commercial launch services to international customers which would create discrimination against launch service providers of other nations and has no intention of providing such inducements in the future. Accordingly, the PRC stated it agreed not to offer inducements of any kind in connection with the provision of commercial launch services to international customers which would create discrimination against launch service providers of other nations.

III. NON-DISCRIMINATION

The U.S. stated that U.S. providers of commercial launch services do not discriminate unfairly against any international customers or suppliers and that it is not U.S. Government policy to encourage any such unfair discrimination by U.S. providers of commercial launch services. Accordingly, in implementing its commitments under this Agreement, the PRC shall require that its

providers of commercial launch services not discriminate unfairly against any international customers or suppliers.

IV. CONSULTATIONS

1. The PRC and U.S. will consult annually with respect to the obligations in this agreement - in particular, the implementation of Article II(B)(ii), (iii), and (iv), including the nature and extent of direct and indirect government support provided to commercial launch services providers and developments--in particular, those described in Paragraph 3 below--in the international market for commercial launch services.

2. In addition, each party undertakes to enter into special consultations within thirty (30) days of a request by the other party to discuss matters of particular concern.

In particular, special consultations will be held to review the situation in which there is an absence of Western launch availability due to full manifests or launch failures during the required launch period (generally within three (3) months before and after the preferred launch date), if the PRC has reached the limitation set out in Article II(B)(ii), or if the bunching provisions established in Article II(B)(vi) would apply to prevent the launch of a satellite. If information is provided which verifies, to the satisfaction of the U.S., that the situation described above exists, the U.S. may increase the quantity restriction of available launches established under Article II(B)(ii) or relax the bunching provision set out in Article II(B)(vi) to permit the satellite to be placed on the PRC launch vehicle manifest for launch.

3. Semiannually, the limitation on the total number of satellites for international customers that may be launched by PRC providers of commercial launch services will be reviewed by both parties and, if appropriate, adjusted to reflect changes in the demand for launch services (including changes arising from a projected absence of Western launch availability over an extended period) upon request of the PRC in light of developments in the commercial launch services market.

Among the developments which would justify favorable reconsideration and cause the U.S. and the PRC to raise the quantity restriction established under Article I(B)(ii) and/or relax the bunching provision under Article II(B)(vi) are:

(a) development of the market for commercial space launch services to GEO that is significantly greater than the estimated average over the life of the agreement of 12-15 commercial launches per year upon which the limitation set out in Article II(B)(ii) is based, taking into account PRC compliance with its commitments under the agreement; or

(b) the development of a commercially viable project for satellite services that fundamentally changes demand for launch services.

If the parties agree that either of the above conditions exist, the U.S. may increase the quantity restriction established under Article II(B)(ii) and/or relax the bunching provision set forth in Article II(B)(vi) to satisfy the change in demand for launch vehicles for GEO satellites.

4. With respect to Article II(B)(ii), if the average annual number of commercial launches subject to the provisions of Article II(B)(ii) (including launch failures) is 20 or more over the first three years of the agreement, or if the two governments, by mutual agreement, conclude that commitments (as defined in Annex I) for such launches indicate that average annual launches of 20 or more will occur during that three year period, then the quantitative limit contained in Article II(B)(ii) shall be increased to 13.

If the average annual number of commercial launches subject to the provisions of Article II(B)(ii) (including launch failures) is 20 or more over the first four years of the agreement or, if the two governments, by mutual agreement, conclude that commitments for such launches indicate that average annual launches of 20 or more will occur during the first four years of the agreement, then the quantitative limit contained in Article II(B)(ii) shall be increased to 16.

5. If the U.S. independently determines that any of the conditions listed in paragraphs 2 or 3 of this Article have been met, the U.S. may unilaterally raise the quantity restriction set out in Article II(B)(ii) or relax the bunching provision described in Article II(B)(vi). Before such action, the U.S. shall notify the PRC of its intent to act unilaterally, and the PRC shall have thirty (30) days in which to respond to the proposed U.S. action. If the PRC does not object within thirty (30) days, the U.S. may take unilateral action to increase the quantity restriction or relax the bunching provision.

6. The U.S. and the PRC agree to work toward a common understanding of the application of market principles to prices, terms, and conditions of commercial launch services for international customers.

7. To facilitate the annual consultations, the U.S. and the PRC agree to exchange information as follows:

(a) The U.S. shall each year in advance of such consultations provide to the PRC such publicly releasable information as it possesses with respect to prices, terms and conditions prevailing in the international market for commercial launch services.

(b) The PRC shall each year in advance of such consultations provide comprehensive information to the U.S. regarding prices, terms, and conditions offered by PRC providers of commercial launch services for the launch of satellites. The PRC may also provide other information that it believes may have a material effect on pricing practices of PRC providers of commercial launch services.

(c) The PRC may request that the U.S. provide additional publicly releasable information with respect to international prices, terms, and conditions, and may in addition request U.S. views regarding prevailing international market conditions and likely future developments, as well as government supports or inducements. The U.S. shall respond to such requests within thirty (30) days. If such information cannot be provided directly because of business confidentiality, the U.S. shall provide such information in summary form.

(d) The U.S. may request additional information with respect to the prices, terms, and conditions offered by PRC providers of commercial launch services and any PRC government supports or inducements. The PRC shall respond to such request within thirty (30) days. If such information cannot be provided directly because of business confidentiality, the PRC shall provide such information in summary form.

(e) The U.S. and the PRC shall keep all information received from each other under this paragraph strictly confidential and shall not provide it to any other government or any private person without the written consent of the other.

8. The U.S. and the PRC shall also provide each year, in advance of the annual consultations, information on a consolidated basis concerning the commitments their launch service providers have undertaken to provide commercial launch services for international customers. This information may be made publicly available.

9. If a launch of a satellite for an international customer will not be performed as scheduled, the PRC shall notify the U.S. regarding the reasons for the delay and the new date for the launch as soon as possible.

10. It is understood that the U.S. and the PRC will review the information contained in this Article during annual consultations in the context of developments in the international market for commercial launch services.

V. CLARIFICATION OF REMEDIAL MEASURES

1. If, after friendly consultations with the PRC, the U.S. determines that there is clear evidence that the provisions of this Agreement have been violated, the U.S. reserves its right to take any action permitted under U.S. laws and regulations, taking into account the harm caused to U.S. interests under the agreement. The U.S. shall seek to avoid actions inconsistent with this Agreement.

2. With regard to export licenses, any applications for a U.S. export license will be reviewed on a case-by-case basis consistent with U.S. laws and regulations. Nothing in this Agreement shall be construed to mean that the U.S. is constrained from taking any appropriate action with respect to any U.S. export license, consistent with U.S. laws and regulations. Nevertheless, the U.S. will do its utmost to assure, consistent with U.S. laws and regulations, continuity of issued license(s) and the completion of the transactions covered in such license(s).

VI. DISCUSSIONS ON INTERNATIONAL RULES

The U.S. and the PRC are prepared to enter into discussions with other interested parties on comprehensive international rules with respect to government involvement in and other matters relating to the international market for commercial launch services. It is understood, however, that nothing in this Agreement shall prejudice any position on any issue that either the U.S. or the PRC may take in those discussions.

VII. COMPREHENSIVE REVIEW

The U.S. and the PRC shall complete a comprehensive review of the terms and operation of this Agreement by mid-1998.

VIII. ENTRY INTO FORCE

This Agreement shall enter into force on January 1, 1995 and shall remain in force until December 31, 2001. It may be terminated at any time by mutual agreement if superseded by an international agreement on government involvement in, and other matters relating to, the international market for commercial launch services or under such other circumstances as may be mutually agreed.

IN WITNESS WHEREOF, the undersigned, being duly authorized by their respective Governments, have signed this Agreement.

DONE at _____ in duplicate, in the English and Chinese languages, both texts being equally authentic this _____.

For the Government of
the United States of America:

For the Government of the
People's Republic of China:

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ANNEX I

The following agreed definitions constitute an integral part of the Memorandum of Agreement between the Government of the United States of America and the Government of the People's Republic of China Regarding International Trade in Commercial Launch Services of _____.

1. "Commercial space launch services" means commercially offered or provided services to launch into space any spacecraft or satellite, including but not limited to communications satellites, for an international customer. All types or classes of launch vehicles that may be used by a Chinese space launch service provider to provide commercial space launch services are subject to this Agreement.

2. "PRC space launch service providers" means any PRC entity, or agent or instrumentality acting on its behalf, permitted by the government of the People's Republic of China to provide commercial space launch services or the space launch vehicles for such services.

3. "International customer" refers to the following:

(a) any person, or any kind of corporation, company, association, venture, partnership, or other entity, whether or not organized for pecuniary gain, or privately or governmentally owned or controlled other than those institutions or entities which are owned or controlled by PRC nationals and provide telecommunications services primarily to the Chinese domestic market; or

(b) any governmental body, excluding the Government of the United States of America and the Government of the People's Republic of China; or

(c) any international organization or quasi-governmental consortium, including but not limited to INTELSAT, INMARSAT, or their respective legal successors;

which is the ultimate owner or operator of a spacecraft or satellite or which will deliver a space craft or satellite to orbit for use by such ultimate owner or operator.

4. "Commitment" means any agreement by an international customer with a provider of commercial launch services to launch a principal payload, which effectively removes the launch from international commercial competition. The term "commitment" does not include reservation agreements.

5. "Comparable commercial space launch services" means commercial space launch services offered to launch a spacecraft of the weight class that is the subject of a launch competition, sole source or directed procurement, taking into consideration relevant factors that may be considered when evaluating the prices, terms and conditions of such services, including, but not limited to, such factors as intended orbit, risk management, financing, satellite lifetime on orbit and integration costs.

6. "Government inducements" with respect to a particular launch services transaction include, but are not limited to, unreasonable political pressure, the provision of any resources of commercial value unrelated to the launch service competition and offers of favorable treatment under or access to defense or national security policies or programs, development assistance policies or programs, and general economic policies or programs (e.g., trade, investment, debt, or foreign exchange policies).

7. "Unfair business practices" means the making of any offer, payment, promise to pay, promise or offer of anything of value or the authorization of the payment of anything of value, or any promise to make such payment, to any official, individual, or any other entity for the purpose of obtaining or retaining business for or with or directing business to, any person, including making payment to a person while knowing that all or a portion of the payment will be offered, given or promised, directly or indirectly, to any official, individual or any other entity for the purposes of obtaining or retaining business.

8. "Geosynchronous earth orbit" means an orbit approximately 19,400 nautical miles (35,900 kilometers) above the surface of the earth at the equator in which a payload completes one earth orbit in a 24-hour period, holding a fixed position above the earth.

9. "Geosynchronous transfer orbit" means a temporary orbit used to reposition a spacecraft or satellite into a geosynchronous earth orbit.

10. "Low earth orbit" means, for purposes of this agreement, any orbit below geosynchronous earth orbit.

11. "Principal payload" means a telecommunications satellite, or, in the absence of a telecommunications satellite, any other spacecraft or combination of spacecraft.

12. "Sole source or directed procurement" means any agreement where the launch services customer does not hold a competition and selects a supplier with whom to negotiate a launch services agreement.

13. A "new type of launch vehicle" must have significantly higher risk for the first launch than other launch vehicles already in production in order to qualify for a "test flight" price. Significantly higher risk results only from major changes to high -

risk systems such as the propulsion or avionics systems. Accordingly, a "new type of launch vehicle" is one in which a majority of the primary systems (e.g. propulsion, end-to-end avionics, primary structure) and a majority of the component subsystems (e.g. strap-on boosters, guidance package, interstage adaptor) have been redesigned or significantly modified, resulting in a new untested capability not previously available on that vehicle. Minor vehicle enhancements, such as an enlarged fairing, upgraded software, extended propellant tanks, a modified payload or interstage adaptor, or a slightly modified electrical system would not by themselves represent a redesign or a significant modification for purposes of determining a new vehicle.

Annex II: Pricing Comparability Factors for Commercial Launch Services to GEO

Both parties agreed to the following six factors for comparing or evaluating launch services in the international market. Such factors can often explain legitimate distinctions in the price offered for the launch of a particular payload relative to market economy providers of commercial launch services.

For each factor, a brief description is provided, along with average ranges representing the impact that the factor could have on the ultimate price to the customer when applied in a competition. These cost ranges represent the values associated with the factors for contracts involving PRC launch providers in the international commercial launch services market. The particular value associated with a given comparability factor may be higher or lower than the ranges discussed below for a specific case. Such a value can be used if it can be definitely established after examination of the actual circumstances in that case.

During annual consultations, the ranges for each factor shall be evaluated to determine if they have changed.

Intended Orbit: Based on delivery orbit for launch provider, and provider of Perigee Kick Motor (PKM).

Resolution: Both sides agreed that recent contracts involving the purchase of a PKM by the customer have resulted in additional costs of \$6 to \$7 million (USD) for the purchase of the PKM alone. Integration and risk management costs for the payload PKM will be included in this factor, when appropriate. To the extent that integration and risk management costs for the payload vehicle and PKM vehicle exist, they already are included in the "additional costs" and risk management factors discussed below. In some cases this factor may also reflect certain discounts representing customer preferences for GTO delivery, rather than LEO delivery.

Risk Management: Addresses potential differences in insurance prices for the customer (and different forms of risk management, such as political risk insurance).

Resolution: Both sides agreed that the basic risk management insurance rates for PRC vehicles can be 1 to 4 percent higher than the rates for market economy vehicles, depending upon the particular vehicles in question (relative rates can also vary greatly on the basis of a vehicle's recent performance). However, this difference in rates does not always result in significantly different absolute premiums for the customer, depending on the difference in launch service prices and satellite costs. It was also agreed that (in addition to differing vehicle characteristics) factors such as political risk may be considered in this calculation, if appropriate.

Additional Costs: Integration costs address different types of payload vehicle, and/or PKM vehicle integration costs, and mission software/hardware modification costs. Launch support costs involve extra transportation expenses, security costs, extra equipment, and personnel support.

Resolution: Both sides agreed that the total costs for this factor range between \$4 and \$6 million.

<u>Vehicle</u>	Ensures comparison of vehicle classes providing similar performance.
<u>Lift Capability:</u>	Both sides agreed that lift capability may sometimes be applied as a comparability factor due to differences in vehicle prices from one class of performance to the next.
<u>Payment Conditions and Terms:</u>	Relates to various payment and financial conditions or incentives.
Resolution:	The issue centers on the economics of the customer's financial position. A lower total cost is determinate in instances where a customer is cash-rich. On the other hand, a launch provider's ability to offer favorable credit terms, which would produce a favorable payment schedule, may be more important in cases where the customer has credit limitations. In cases where favorable credit terms are not possible, a flexible payment schedule still can be a powerful incentive. Since both sides have the capability to offer credit, they agreed that both payment conditions and terms should be considered as comparability factors, when appropriate.
<u>Lifetime:</u>	Addresses impact of different satellite lifetimes resulting from launch services.
Resolution:	Both sides agreed that the use of some PRC launch vehicles can result in satellite lifetimes that are 1 to 2 1/2 years less than launches on a market economy vehicle, though in some cases there may be no impact on satellite lifetime. Evaluation of this factor is complex and must be done on a case-by-case basis. Additional elements such as intended (or desired) satellite lifetime, cost per transponder, number of transponders, etc., must also be considered.

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